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| 09/911,575 | 07/25/2001 | Harley R. Myler | 9560-002-27 | 6086 |
| 7590 | 05/18/2004 | | EXAMINER | |
| CARL M. NAPOLITANO, Ph.D. ALLEN, DYER, DOPPLET, MILBRATH & GILCHRIST, P.A. P.O. BOX 3791 ORLANDO, FL 32802 | | | TRAN, TRANG U | |
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Please find below and/or attached an Office communication concerning this application or proceeding.

| | | | |
|------------------------------|------------------------|---------------------|--|
| Office Action Summary | Application No. | Applicant(s) | |
| | 09/911,575 | MYLER ET AL. | |
| | Examiner | Art Unit | |
| | Trang U. Tran | 2614 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) Responsive to communication(s) filed on 01 March 2004.

2a) This action is FINAL. 2b) This action is non-final.

3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) Claim(s) 1-29 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5) Claim(s) _____ is/are allowed.

6) Claim(s) 1-29 is/are rejected.

7) Claim(s) _____ is/are objected to.

8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) The specification is objected to by the Examiner.

10) The drawing(s) filed on _____ is/are: a) accepted or b) objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a) All b) Some * c) None of:

1. Certified copies of the priority documents have been received.

2. Certified copies of the priority documents have been received in Application No. _____.

3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) Notice of References Cited (PTO-892)

2) Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.

4) Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.

5) Notice of Informal Patent Application (PTO-152)

6) Other: _____.

DETAILED ACTION

Response to Arguments

1. Applicant's arguments with respect to claims 1-29 have been considered but are moot in view of the new ground(s) of rejection.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1-10 and 15-29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Zabih et al. (US Patent No. 5,767,922) in view of admitted prior art (Fig. 5).

In considering claim 1, Zabih et al discloses all the claimed subject matter, note 1) the claimed receiving a plurality of digital video frames, the plurality of digital video frames comprising a portion of the received video stream and having at least one intercut sequence is met by portion of video tape containing a plurality of three successive video frames 1, 2 and 3 for providing a moving or motion picture and in frame 3, the different object 24 is present at different location from the object 22 in frames 1 and 2, this would indicate a scene break (cut) (Figs. 1 and 3, col. 5, line 52 to col. 6, line 47). However, Zabih et al explicitly do not disclose the claimed within one of the at least one intercut sequence(s), applying a quality analysis technique to at least two of the plurality of digital video frames to produce at least one video quality metric,

determining whether each video quality metric indicates presence of a degraded frame, for each video quality metric indicating the presence of a degraded frame, identifying the degraded frame.

The admitted prior art (Fig. 5) teaches that the second technique is referred to as the “no reference” method, as shown in Fig. 5, only at the video destination (**receiving digital video stream which include the plurality of frames**) is feature extraction performed, this example of an existing no reference approach analyzes 20 for specific degradations in the data reaching the video destination 3 to produce the quality measure 21 **from frame to frame basic** (Fig. 5, page 8, line 23 to page 9, line 20).

Therefore, it would have been obvious to one ordinary skill in the art at the time of the invention to incorporate the quality analyze method as taught by the admitted prior art (Fig. 5) into Zabih et al's system in order to measurement of digital video transmission quality and subsequent correction of degraded portions of the video or other anomalies in the video.

In considering claim 2, the claimed further comprising: identifying each of the at least one intercut sequence(s) in the received plurality of digital video frames is met by the detection of scene breaks (Fig. 3, col. 6, line 34 to col. 7, line 67) of Zabih et al.

In considering claim 3, the claimed wherein applying a quality analysis technique to at least two of the plurality of digital video frames to produce at least one video quality measurement includes: determining a peak signal to noise ratio is met by page 4, lines 15-18 of the admitted prior art (Fig. 5).

In considering claim 4, the claimed wherein applying a quality analysis technique to at least two of the plurality of digital video frames to produce at least one video quality measurement includes: applying a Gabor transform to the at least two of the plurality of digital frames is met by Fig. 3, page 5, lines 23-30 of the admitted prior art.

In considering claim 5, the claimed wherein applying a quality analysis technique to at least two of the plurality of digital video frames to produce at least one video quality measurement includes: applying Marr-Hilfreth and Canny operators to the at least two of the plurality of digital video frames is met by Fig. 3, page 5, lines 23-30 of the admitted prior art.

In considering claim 6, the claimed wherein applying a quality analysis technique to at least two of the plurality of digital video frame to produce at least one quality measurement includes: applying fractal decomposition to the at least two of the plurality of digital video frames is met by Fig. 3, page 5, lines 23-30 of the admitted prior art.

In considering claim 7, the claimed wherein applying a quality analysis technique to at least two of the plurality of digital video frames to produce at least one video quality measurement includes: applying Mean Absolute Difference analysis to the at least two of the plurality of digital video frames is met by Fig. 3, page 5, lines 23-30 of the admitted prior art.

In considering claim 8, the claimed wherein applying a quality analysis technique to at least two of plurality of digital video frames to produce at least one video quality measurement includes: determining a correlation coefficient for at least one pair of the

at least two of the plurality of video frames is met by the model correlated (Fig. 2, page 5, lines 17-22) of the admitted prior art.

In considering claim 9, the claimed wherein identifying the degraded frame includes: applying a quality analysis technique to at least one of the at least two of the plurality of digital video frames and to at least a third one of the plurality of digital video frames is met by page 4, line 24 to page 5, line 30 of the admitted prior art.

In considering claim 10, the claimed correcting the degraded frame is met by Fig. 2, page 5, lines 17-22 of the admitted prior art.

In considering claim 15, the claimed wherein correcting the degraded frame includes: identifying a predetermined degradation in the degraded frame is met by the quality measure 17 or 21 (Fig. 5, page 6 line 14 to page 7, line 24) of the admitted prior art, and the claimed correcting the predetermined degraded is met by Fig. 2, page 5, lines 17-22 of the admitted prior art.

In considering claim 16, the claimed wherein the predetermined degradation includes one selected from a group consisting of a blocking effect, mosquito noise, and motion compensation noise is met by the blocking effect (page 7, lines 8-29) of the admitted prior art.

In considering claim 17, the claimed wherein identifying the at least one intercut sequence includes: identifying at least one cut in the received plurality of digital video frames is met by the detection of scene breaks (Fig. 3, col. 6, line 34 to col. 7, line 67) of Zabih et al.

In considering claim 18, Zabih et al discloses all the claimed subject matter, note 1) the claimed comparing at least a first one of the plurality of digital video frames to at least a second one of the plurality of digital video frames to produce at least one correlation coefficient is met by the global motion similarly measures between images and are based on correlation ((Fig. 3, col. 6, line 34 to col. 7, line 67), 2) the claimed comparing each of the at least one correlation coefficient to a predetermined range is met by Fig. 4, col. 8, lines 1-13, and 3) the claimed for each of the at least one compared correlation coefficient falling outside the predetermined range, identifying at least one frame corresponding to a cut in the received plurality of digital video frames is met by peaks should be noted at frames 9, 30 and 60 indicative of scene breaks, these peaks 46 ranging from about 0.4 to over 0.8 (Fig. 4, col. 8, line 1 to col. 9, line 18).

In considering claim 19, the claimed wherein each of the at least one correlation coefficient is normalized is met by peaks should be noted at frames 9, 30 and 60 indicative of scene breaks, these peaks 46 ranging from about 0.4 to over 0.8 (Fig. 4, col. 8, line 1 to col. 9, line 18) of Zabih et al.

In considering claim 20, the claimed wherein each of the at least one correlation coefficient is normalized on a scale of 0 to 1 is met by peaks should be noted at frames 9, 30 and 60 indicative of scene breaks, these peaks 46 ranging from about 0.4 to over 0.8 (Fig. 4, col. 8, line 1 to col. 9, line 18) of Zabih et al.

In considering claim 21, the claimed wherein the predetermined range approximately 0 to 0.9 is met by peaks should be noted at frames 9, 30 and 60

indicative of scene breaks, these peaks 46 ranging from about 0.4 to over 0.8 (Fig. 4, col. 8, line 1 to col. 9, line 18) of Zabih et al.

In considering claim 22, the claimed wherein the received video stream includes metadata stream information, and wherein identifying at least one cut in the received plurality of digital video frames includes: analyzing the metadata stream information is met by the video destination 3 and the feature codes which is referred to as "metadata" (Fig. 4, page 6, lines 14-27) of the admitted prior art.

In considering claim 23, the claimed wherein the source video stream is processed to produce the received video stream is met by the video source 1 (page 4, line 19 to page 5, line 5) of the admitted prior art.

In considering claim 24, the claimed wherein the source video stream is processed to produce the received video stream by passing the source video stream through a channel is met by the video destination 3 (page 4, line 19 to page 5, line 5) of the admitted prior art.

In considering claim 25, the claimed wherein the source video stream is processed to produce the received video stream by applying a hypothetical reference circuit to the source video stream is met by channel 2 (Fig. 1, page 4, line 30 to page 5, line 5) of the admitted prior art.

Claim 26 is rejected for the same reason as discussed in claim 1.

In considering claim 27, the claimed wherein the channel comprises a circuit is met by channel 2 (Fig. 1, page 4, line 30 to page 5, line 5) of the admitted prior art.

In considering claim 28, the claimed wherein the repository comprises a database is met by page 4, lines 9-18 of the admitted prior art.

Claim 29 is rejected for the same reason as discussed in claim 1.

4. Claims 11-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Zabih et al. (US Patent No. 5,767,922) in view of admitted prior art (Fig. 5) and further in view of Murphy et al (US Patent No. 5,745,169).

In considering claim 11, the combination of Zabih et al and the admitted prior art (Fig. 5) discloses all the limitations as discussed in claims 1 and 10 above, except for providing the claimed wherein correcting the degraded frame includes: removing each of the degraded frame. Murphy et al teach that to provide such a detection and concealing process, the system includes an error detecting and concealing circuit 29, arranged to identify a block of corrupted data and to conceal this block of corrupted data by selecting an equivalent block from a previous transmitted frame (Fig. 3, col. 3, line 55 to col. 4, line 67). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to incorporate the concealing circuit as taught by Murphy et al into the combination of Zabih et al and the admitted prior art (Fig. 5)'s system in order to provide an improved method and apparatus for detecting and correcting the presence of errors in a video signal.

In considering claim 12, the combination of Zabih et al and the admitted prior art (Fig. 5) discloses all the limitations as discussed in claims 1 and 10 above, except for providing the claimed wherein correcting the degraded frame includes: obtaining a replacement frame for the degraded frame. Murphy et al teach that to provide such a

detection and concealing process, the system includes an error detecting and concealing circuit 29, arranged to identify a block of corrupted data and to conceal this block of corrupted data by selecting an equivalent block from a previous transmitted frame (Fig. 3, col. 3, line 55 to col. 4, line 67). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to incorporate the concealing circuit as taught by Murphy et al into the combination of Zabih et al and the admitted prior art (Fig. 5) 's system in order to provide an improved method and apparatus for detecting and correcting the presence of errors in a video signal.

In considering claim 13, the claimed wherein the replacement frame is obtained from the source video stream is met by the error detecting and concealing circuit 29 (Fig. 3, col. 3, line 55 to col. 4, line 67) of Murphy et al.

In considering claim 14, the combination of Zabih et al and the admitted prior art (Fig. 5) discloses all the claimed subject matter, note 1) the claimed identifying a degraded portion of the degraded frame is met by the quality measure 17 or 21 (Fig. 5, page 6 line 14 to page 7, line 24). However, the admitted of applicant's prior art explicitly does not disclose the claimed identifying at least one from the plurality of the digital video frames containing an undegraded portion corresponding to the degraded portion of the degraded frame and the claimed replacing the degraded portion of the degraded frame with the undegraded portion. Murphy et al teach that to provide such a detection and concealing process, the system includes an error detecting and concealing circuit 29, arranged to identify a block of corrupted data and to conceal this block of corrupted data by selecting an equivalent block from a previous transmitted frame (Fig. 3, col. 3,

line 55 to col. 4, line 67). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to incorporate the concealing circuit as taught by Murphy et al into the combination of Zabih et al and the admitted prior art (Fig. 5)'s system in order to provide an improved method and apparatus for detecting and correcting the presence of errors in a video signal.

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Trang U. Tran whose telephone number is (703) 305-0090. The examiner can normally be reached on 8:00 AM - 5:30 PM, Monday to Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John W. Miller can be reached on (703) 305-4795. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

TT
May 15, 2004



TRAN TRAN
PATENT EXAMINER